# Handheld Personal Computers

An Evaluation

of

HPC Models and Usefulness

584.W

# Overview

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# Introduction and Background
## Why did we do this and why are we talking about it?

- **584.W initiated an evaluation of HPCs with several goals:**
  - To learn about the devices and their usefulness for projects
  - Explore alternatives for laptops
    - » cost
    - » size/weight
    - » battery life
  - Enhance employees connectivity / portability of office tools
    - » schedules
    - » data
    - » applications
    - » web
- **Several groups have expressed interest in the results**
  - Managers, IT managers, travellers, tech-types

# Introduction and Background
## Evaluation Assumptions

- A significant subset of laptop users carry them for reasons related to connectivity
  - Email
  - Presentations
  - Web access
  - No heavy typing
- Laptop functionlity is desireable at a lower weight and price point
  - $3000 is very normal, Office application licenses extra
  - Size DOES matter -- an extra carry-on is usually required
  - Discreteness in meetings is impossible
- Not every laptop user could benefit

# Basic Features
## So, what is an HPC (and what is it not)?

■ **An HPC is:**

– a "real" computer with CPU, keyboard, memory, connectivity

– light -- weighs from 12 - 22 oz.

– small -- ranging from 7"x3" to 9"x5" (all are about 1.3" high)

– familiar -- desktop looks just like your Win95 or NT desktop

– fast -- 66-75Mhz CPUs common, applications are loaded in ROM

– flexible -- software applications are easy to find

■ **An HPC is not:**

– a PalmPilot -- Palm Top Computers are a different class of system

» no keyboard, primarly organizers, much less compute power,

– easy to type on for long periods of time -- keyboards are small

– a good storage device -- no hard drive, ususally 24-32Mb RAM

# Basic Features

## User Interface (How do I use this thing?)

- Windows CE interface looks identical to '95 or NT desktop
  - Icons are identical (files, folders, taskbar, start button)
  - Navigation is identical (Explorer, Recycle Bin, clicking, cut/paste..)
- Touchscreeens are the standard fare
  - A 'stylus' is used rather than a mouse for interaction
- Screens are 640 x 240 (about half pixel height of a desktop)
  - text is compressed but can be sized up or down using fonts
- Letter keys are 'chicklet' sized
  - touch typing is not really an option
- Almost all have hot function keys
  - one touch access to popular programs

# Office Applications
## What are the standard software packages?  (Microsoft strikes again)

■ **Pocket Word, Excel, PowerPoint**

- Reduced memory versions scaled for CE and ROM resident
    - » PowerPoint is display only in current versions
- Fewer fonts, insertable objects, and less overall flexibility
- Identical "look and feel" with desktop versions

■ **Pocket Outlook and Schedule+**

- Appointment scheduling
- Alarming
- Notepad associated with each appointment for meeting notes/actions

■ **Bfax Suite**

- Send and receive faxes using modem

# Synchronization

## Interacting with your PC

- **Remote Mounted Disk**
  - serial cable, usually in conjunction with a docking cradle

- **Manual File Manipulation**
  - click and drag files between computers

- **Active Synchronization**
  - 'Synchronization Directory' contents automatically updated
  - Upon completion, most current version is on both machines
  - Automatic synchronization of schedule applications/cardfiles

# Email and Web Access
## Staying connected on the road

- Requires a modem (more later on modems)
- Email
    - MS Exchange for WinCE is included in Exchange Server
        - » Downloads only sender/subject/size to conserve memory
        - » User manually selects messages for full content download
        - » Messages retained on server or not per individual settings
    - Third Party packages available
    - Email free using Web accounts (Yahoo, HotBot, ……)
        - » When on travel filter/forward your mail to travel account for access
- Web Access
    - Pocket Internet Explorer included with WinCE
    - Virtually identical to standard version except for cacheing

# Extended Features
## Cool extras worth having

- **Connectivity via Modem**
  - PC Card modems available
    - » Use lots of power and are one more thing to lose
  - Built-in 'low power' modems in some models
    - » 33Kbps is standard and plugs into a standard phone jack
- **Voice**
  - Voice recorders almost a standard feature
    - » Record notes to yourself, or save as a file an email as an attachment
    - » Usually accessible with external button (no need to open or power up)
- **Printing**
  - Infrared print port works with IrDA compatible printers (most HP)

# Extended Features

## More extras maybe worth having

■ Video Camera

– PC Card Digital Camera Unit

– HPC memory used to store images captured

– Useful for capturing whiteboard info or 'as is' installations…...

■ Video Drivers

– PC Card to VGA connector

– HPC can drive standard PC monitors / overhead projectors

– Useful for giving presentations

# Software Availability
## More neat stuff that doesn't require more hardware

- **Many applications available on-line**
  - Business, drawing, connectivity, maps, games, special interest
  - Several packages come bundled with systems
  - Special purpose software can be created with existing tools
- **Specific applications evaluated**
  - CalliGrapher Handwriting Recognition software
    - » learns your block or cursive writing and reduces keyboard use
  - Quicken Traveler
    - » Tracks expenses for travel or projects
  - On Schedule
    - » Enhanced Scheduler

# Models Evaluated
## The fun part!

■ HP 620/660  ($800.00)

– 16Mb RAM upgradeable, color screen, bundled s/w, cradle

– Main Strengths:  viewability, color screen, bundled software

– Main Weaknesses: price, size, no modem

■ Phillips Velo 500  ($500.00)

– 24Mb RAM upgradeable, b/w screen, modem, cradle, bundled s/w

– Main Strengths: price, modem, size, battery life

– Main Weaknesses: viewability, keyboard usability

■ Sharp Mobilion 4500 ($600.00)

– 16Mb RAM, color screen, modem, (optional camera for $300.00)

– Main Strength: price with color screen, size, modem, camera

– Main Weakness: lack of RAM upgradeability, keyboard

» model 5600 ($800.00) upgradeable to 32Mb

# Tips and Recommendations
## Out on a limb

- Tips
  - Don't get an HPC and expect to be able to type normally
  - Get the handwriting recognition software (and use it)
  - If you will use an HPC in non-office lighting, get a color screen
  - Search for downloadable software before you buy software
  - Buy an extra stylus or two and never use your finger on the screen
  - In a pinch, almost all HPCs can run on 2 AA batteries for 4 hours
  - Use synchronization often, don't accumulate data
  - Look around to find the nearest IrDA capable printer
  - Save some money, buy 3 or 4 HPCs instead of one laptop
- Recommendations
  - If prime consideration is price or size, buy a Phillips Velo
  - If prime consideration is viewability, buy an HP 660
  - If prime consideration is anything else, buy a Sharp Mobilion 5600

# Trends

A guess (educated and otherwise) at what the future holds

- PowerPoint will be able to create/modify slides
- Additional memory/storage will be available in card form
  - IBM microdrive, PC slot card flash storage
- Color screens will become standard
- Integrated wireless modems will become popular (Nokia)
- Assistive technology applications will proliferate
  - project management tools, personal assistants
- Prices will stabilize at $600 to $700 depending on features

# In Closing………..

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